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Source: Revue suisse de Zoologie, 126(2) : 197-202

Published By: Muséum d'histoire naturelle, Genève

URL: https://doi.org/10.5281/zenodo.3463447

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Revue suisse de Zoologie (September 2019) 126(2): 197-202 ISSN 0035-418

Two new species and new records of the *Pselaphodes*-complex of genera from China (Coleoptera: Staphylinidae: Pselaphinae)

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Abstract: Two new species of the *Pselaphodes*-complex of genera, *Labomimus consimilis* sp. nov. and *Pselaphodes lianghongbini* sp. nov., are described from Xizang, southwestern China. New collecting data are provided for *P. cuonaus* Yin, Li & Zhao, 2011 and *P. monoceros* Yin & Hlaváč, 2013 in Xizang, and *Taiwanophodes minor* Hlaváč, 2003 in Hunan.

Keywords: Taxonomy - *Pselaphodes* complex of genera - new species - new records - China.

INTRODUCTION

Through a courtesy from Dr Hong-Bin Liang of the Institute of Zoology, Chinese Academy of Sciences (IZCAS), I recently had an opportunity to examine the pselaphine beetles collected during two 2016 insect surveys in Xizang and Hunan Provinces conducted by IZCAS teams. The result revealed two new species of the genera *Labomimus* Sharp, 1883 and *Pselaphodes* Westwood, 1870, and new collecting records of several species of *Pselaphodes* and *Taiwanophodes* Hlaváč, 2003, which is reported in this paper. The taxonomic histories and diversities of these genera in Asia were summarized or supplemented by Hlaváč (2003), Yin *et al*. (2012), Yin & Li (2015), Huang *et al*. (2018a, b), Huang & Yin (2019), Zhang & Yin (2019), and Zhang *et al*. (2019).

MATERIAL AND METHODS

The material used in this paper is housed in the Institute of Zoology, Chinese Academy of Sciences (IZCAS), and the Insect Collection of Shanghai Normal University (SNUC). The original Chinese text is quoted verbatim, followed by English translation placed in parentheses; the letters 'D' or 'N' after the date mean the specimen was collected by daytime or in the night, respectively, and 'D2', for example, means the second collecting site of that day.

Dissected parts were preserved in Euparal on plastic slides that were placed on the same pins with the specimens. The habitus images were taken using a Canon 5D Mark III camera with a Canon MP-E 65mm f/2.8 1-5X Macro Lens, and a Canon MT-24EX Macro Twin Lite Flash used as the light source. Images of the morphological details were produced using a Canon G9 camera mounted to an Olympus CX31 microscope under transmitted light. Zerene Stacker (version 1.04) was used for image stacking. All images were optimized and grouped into plates using Adobe Photoshop CS5 Extended.

TAXONOMY

Labomimus consimilis sp. nov.

Figs 1A, 2A-J

Type material: Holotype; IOZ(E)2058770; ♂; CHINA, '西藏墨脱县亚让电站附近, 2016.VI.17D, 720 m, N° 29.2973, E° 95.2534, 采集人: 梁红斌 (China: Xizang, Motuo County, near Ya-Rang Power Station, Hong-Bin Liang leg.)' (IZCAS).

Type locality: Motuo County, Xizang, China.

Diagnosis: Male: Body length about 2.6 mm. Antennomere 9 strongly dilated, antennomere 10 subtrapezoidal, antennomere 11 curved. Metaventral processes short and broad, narrowed at apex. Protrochanters with sharp, thin ventral spine; mesotrochanters with small ventral spine. Median lobe of aedeagus asymmetric, strongly narrowed apically; parameres elongate and slender; endophallus comprised of one sclerotized plate bearing two elongate branches. Female: unknown.

Manuscript accepted 17.05.2019
DOI: 10.5281/zenodo.3463447

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Description: Male (Fig. 1A). Body reddish brown, body length 2.64 mm. Head slightly broader than long, length from anterior clypeal margin to base 0.50 mm, width across eyes 0.52 mm; each eye composed of about 40 facets; with rather short ocular canthus. Antennomeres 9-11 forming distinct club (Fig. 2A); antennomere 9 strongly dilated, its dorsal surface broadly impressed at apical half, with two tufts of setae, antennomere 10 expanded, sub-trapezoidal, antennomere 11 elongate, its mesal surface strongly impressed at basal half. Maxillary palpomeres 2-4 roundly broadened on lateral margin. Pronotum (Fig. 2B) as long as wide, length along midline and maximum width 0.49 mm, anterolateral margins rounded, narrowing toward apex at apical 1/3. Elytra strongly transverse, length along suture 0.77 mm, maximum width 1.31 mm. Metaventral processes (Fig. 2C) relatively short, roundly narrowed at apex. Protrochanters (Fig. 2D) with thin, sharp ventral spine, profemora simple; mesotrochanters (Fig. 2E) with short ventral spine, mesofemora simple; metatrochanters and metafemora (Fig. 2F) simple. Abdomen broad at base and narrowing apically, length of dorsally visible part along midline 0.88 mm, maximum width 1.02 mm. Semi-membranous sternite IX (Fig. 2G) elongate. Length of aedeagus (Figs 2H-J) 0.47 mm; median lobe asymmetric, strongly narrowing apically; parameres elongate and slender, apices bent ventrally; endophallus composed of one sclerotized plate bearing two elongate branches.

Female. Unknown.



Fig 1. Male habitus of *Labomimus consimilis* sp. nov. (A) and *Pselaphodes lianghongbini* sp. nov. (B). Scale bars: 1 mm.

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Comparative notes: The male of *Labomimus consimilis* is most similar to those of *L. qiujianyuae* Zhang, Li & Yin, 2019 from Xizang, and *L. wuchaoi* Zhang, Li & Yin, 2019 from Yunnan in sharing a curved antennomere 11, and a dilated antennomere 9 bearing tufted setae on the dorsal surface. It differs from *L. qiujianyuae* in the expanded, sub-trapezoidal antennomere 10 (antennomere 10 elongate and sub-cylindrical in *L. qiujianyuae*), the much shorter metaventral processes, the spinose protrochanter (protrochanter simple in *L. qiujianyuae*), and the much narrower apex of the median lobe and relatively much

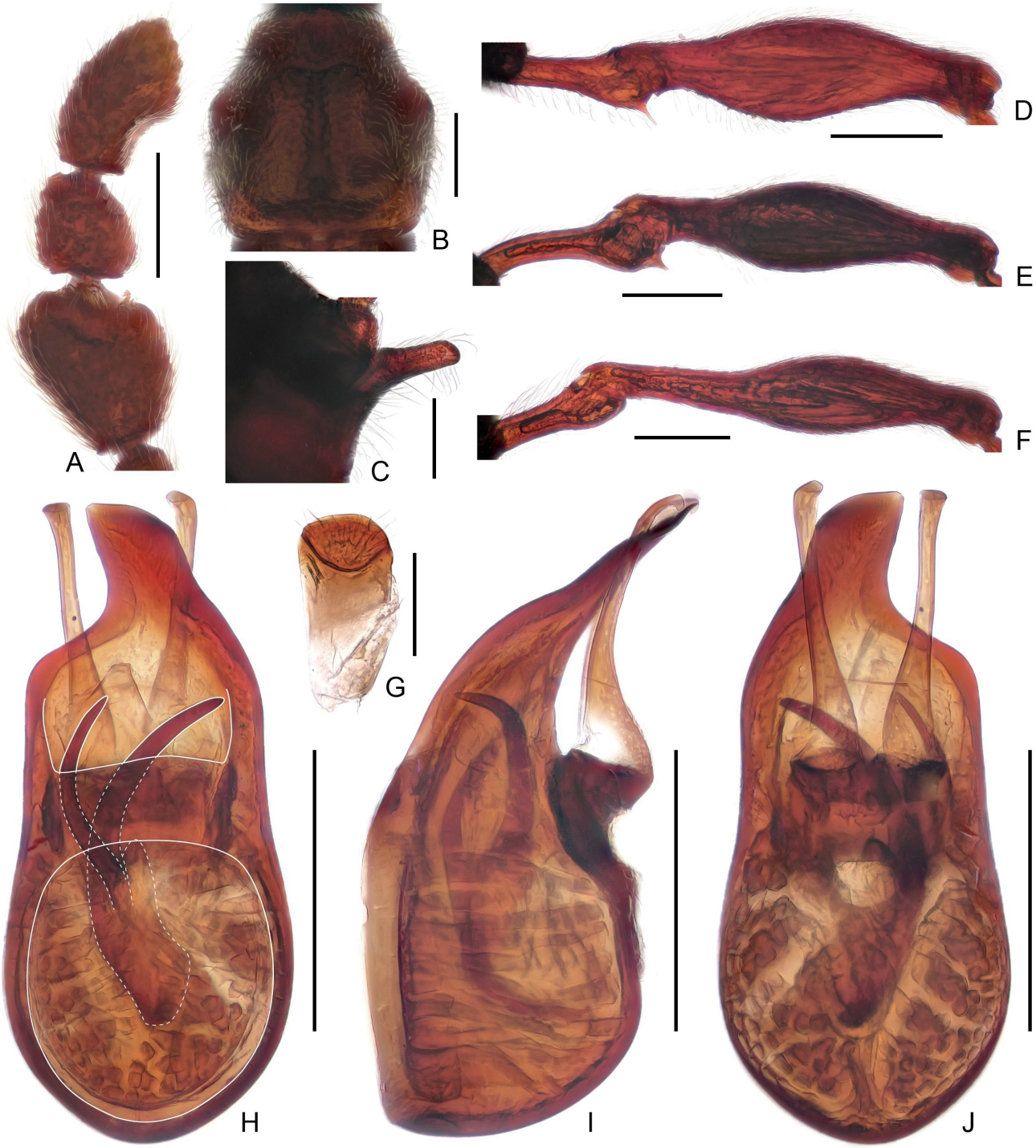


Fig 2. Male diagnostic features of *Labomimus consimilis* sp. nov. (A) Antennal club. (B) Pronotum. (C) Metaventral process, lateral. (D) Protrochanter and profemur. (E) Mesotrochanter and mesofemur. (F) Metatrochanter and metafemur. (G) Sternite IX. (H-J) Aedeagus, dorsal (H), lateral (I), and ventral (J). Scale bars: all 0.2 mm, except 0.1 mm in G.

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longer parameres of the aedeagus; from *L. wuchaoi* in the much smaller body size (2.64 mm vs. 3.26-3.34 mm), the more elongate antennomere 9, the shorter metaventral processes, and the narrowed apex of the aedeagal median lobe (in *L. wuchaoi*, the aedeagus has the median lobe with a broad apex that is strongly impressed at the anterior margin).

Distribution: China: Xizang.

Etymology: The specific epithet '*consimilis*' (very similar) is an adjective referring to the morphological resemblance of the new species to the two related congeners.

Pselaphodes lianghongbini sp. nov.

Figs 1B, 3A-L

Type material: Holotype; IOZ(E)2058749; ♂; CHINA, '西藏错那县勒乡, 边防六连公路4.5 km处, 2016.VI.7D, 2670 m, N° 27.8202, E° 91.7576, 采集人: 梁红斌 (China: Xizang, Cuona County, Le Township, 4.5 km of Bian-Fang-Liu-Lian Highway, Hong-Bin Liang leg.)' (IZCAS). – Paratypes; IOZ(E)2058745 to 2058747, 2058751; 4 ♀♀; CHINA, same label data as holotype (IZCAS).

Type locality: Le Menba Ethnic Township, Cuona County, Xizang, China.

Diagnosis: Male: Body length about 3.6 mm. Antennomere 9 with disc-shaped process near apex, antennomere 10 with round projection at base. Metaventral processes short and broad, narrowed apicad and with round apex. Profemora robust, with large triangular ventral spine, protibiae with distinct apical projection; mesotrochanters with small ventral spine, mesotibiae with slender spur at apex; metacoxae with blunt ventral projection. Median lobe of aedeagus almost symmetrical, narrowing apically and with round apex; parameres with roundly broadened apical half; endophallus comprised of two sclerites. Female: identifiable only by association with male.

Description: Male (Fig. 1B). Body reddish brown, body length 3.63 mm. Head elongate, length from anterior clypeal margin to base 0.73 mm, width across eyes 0.44 mm; each eye composed of about 30 facets; with short ocular canthus. Antennomeres 9-11 forming distinct club (Fig. 3A); antennomere 9 with disc-shaped process near apex, antennomere 10 constricted at base, with round, lamina-like projection at base. Maxillary palpomeres 2-4 strongly protuberant and stemmed on lateral margin. Pronotum (Fig. 3B) longer than wide, length along midline 0.73 mm, maximum width 0.66 mm, roundly angulate at anterolateral margins, narrowing toward apex at apical 2/5. Elytra wider than long, length along suture 1.0 mm, maximum width 1.34 mm. Metaventral processes (Fig. 3C) short and broad, roundly narrowed at apex; with pair of short tubercles above metacoxae. Profemora (Fig. 3D) thickened, with large triangular ventral spine, protibiae (Fig. 3E) with large projection at apex; mesotrochanters (Fig. 3F) with small ventral tubercle; mesotibiae (Fig. 3G) with slender spur at apex; metacoxae (Fig. 3H) with blunt ventral projection. Abdomen broad at base and narrowing apically, length of dorsally visible part along midline 1.17 mm, maximum width 1.32 mm. Semi-membranous sternite IX (Fig. 3I) nearly oval. Length of aedeagus (Figs 3J-L) 0.67 mm; median lobe almost symmetric, narrowing apically and with round apex; parameres narrowed at base and roundly broadened at apical half; endophallus composed of one elongate and one shorter sclerites.

Female. Each eye composed of about 25 facets; antennae simple; mesotrochanters with large, triangular ventral spine; metaventral processes much shorter, subtriangular; lacking tubercles above metacoxae. Measurements (as for male): body length 3.61-3.88 mm, length/width of head 0.74-0.78/0.59-0.63 mm, length/width of pronotum 0.74-0.75/0.64-0.68 mm, length/width of elytra 0.90-0.96/1.35-1.38 mm, length/width of abdomen 1.22-1.40/1.46-1.55 mm.

Comparative notes: Based on the structure of the modification of the male antennal club and the endophallus of the aedeagus, the new species is placed as a member of the *P. bagmatius* species-group containing 15 species from Nepal (termed in Huang & Yin, 2019). *Pselaphodes lianghongbini* can be readily separated from all Nepalese species by a unique combination of the structure of the antennal club, spination of the legs, form of the metaventral processes, as well as the almost symmetric aedeagus.

Distribution: China: Xizang.

Etymology: The specific epithet is dedicated to Dr Hong-Bin Liang, collector of the type series of the new species.

Pselaphodes cuonaus Yin, Li & Zhao, 2011

Pselaphodes cuonaus Yin, Li & Zhao, 2011: 465.

Material examined: 9 ♂♂, 1 ♀; CHINA, '西藏错那县勒乡, 边防六连公路13 km处, 2016.VI.4D2, 3356 m, N° 27.8050, E° 91.7620, 采集人: 梁红斌, 振网 (China: Xizang, Cuona County, Le Township, 13 km of Bian-Fang-Liu-Lian Highway, Hong-Bin Liang leg., beating)' (IZCAS, SNUC).

Comments: The male of this species can be readily recognized based on the unique modification of the antennal clubs, which was illustrated in Yin *et al*. (2011: 468, fig. 16).

Distribution: This species was known from a single male collected at Le Township. The present new record confirms the presence of this species in Cuona.

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***Pselaphodes monoceros* Yin & Hlaváč, 2013**

Pselaphodes monoceros Yin & Hlaváč (in: Yin *et al.*, 2013: 57)

Material examined: 1 ♂; CHINA, '西藏错那县勒乡, 边防六连公路4.5 km处, 2016.VI.7D, 2670 m, N° 27.8202, E° 91.7576, 采集人: 梁红斌 (China: Xizang, Cuona County, Le Township, 4.5 km of Bian-Fang-Liu-Lian Highway, Hong-Bin Liang leg.)' (IZCAS).

Comments: The male of this species is most similar to that of *P. unicornis* Bekchiev & Hlaváč, 2013 and *P. corniger* Huang & Yin, 2019 from Nepal based on the modified, protuberant clypeus (Bekchiev & Hlaváč, 2013; Huang & Yin, 2019). It differs from *P. unicornis* in the different shape of the metaventral processes and a much stouter aedeagus, and from *P. corniger* in the presence of an apical spur of protibiae (protibiae with

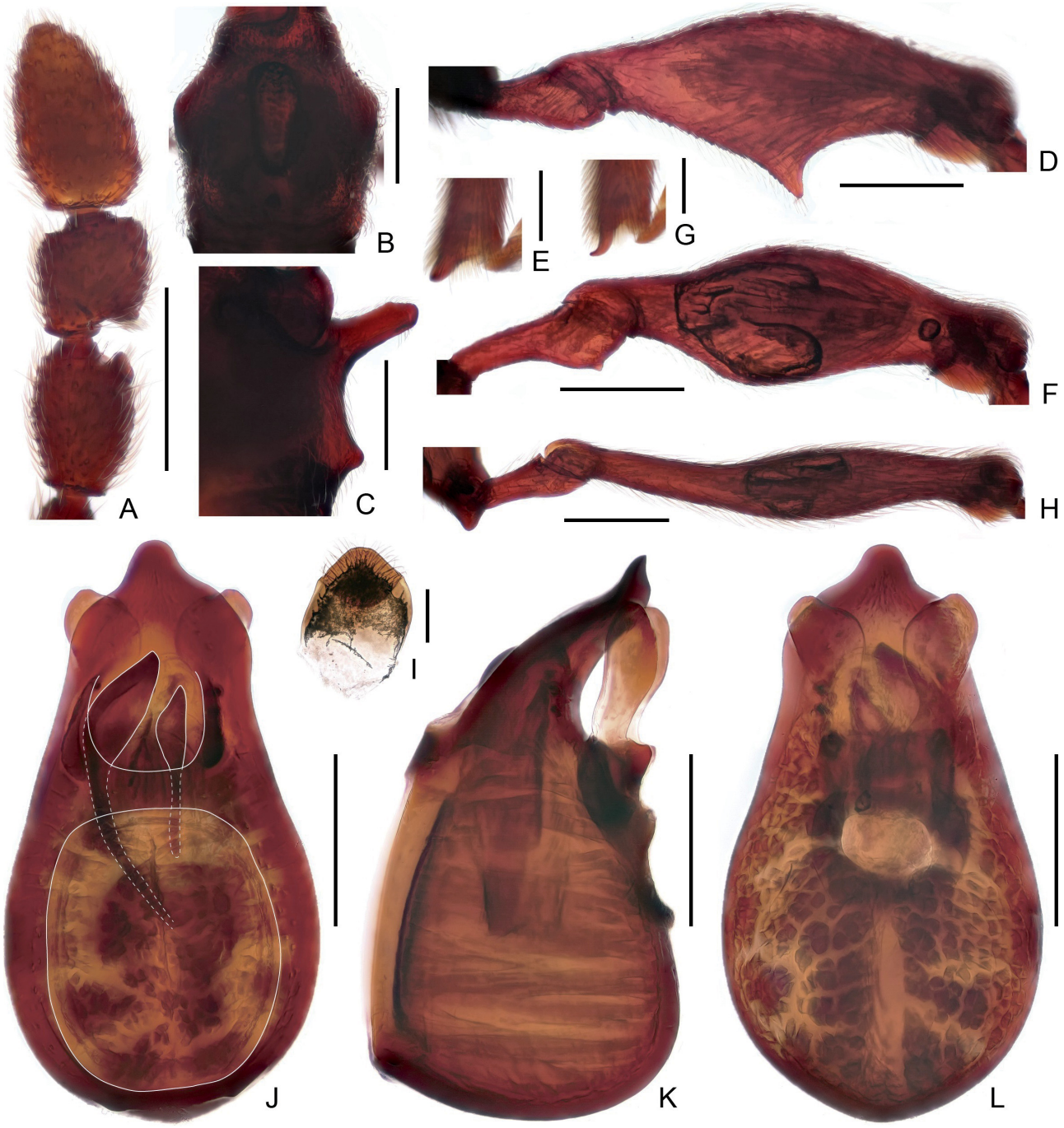


Fig 3. Male diagnostic features of *Pselaphodes lianghongbini* sp. nov. (A) Antennal club. (B) Pronotum. (C) Metaventral process, lateral. (D) Protrochanter and profemur. (E) Apex of protibia. (F) Mesotrochanter and mesofemur. (G) Apex of mesotibia. (H) Metacoxa, metatrochanter and metafemur. (I) Sternite IX. (J-L) Aedeagus, dorsal (J), lateral (K), and ventral (L). Scale bars: 0.3 mm in A-D, F, H; 0.2 mm in J-L; 0.1 mm in E, G, I.

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a preapical spur in *P. corniger*), a different form of the metaventral processes, and the almost symmetric median lobe of the aedeagus (aedeagus strongly asymmetric in *P. corniger*).

Distribution: This species was described from five males and one female collected from Le Township, at an altitude of 2500 m. Its distribution is currently restricted to Le Township of Cuona County.

Taiwanophodes minor Hlaváč, 2003

Taiwanophodes minor Hlaváč, 2003: 292; Yin *et al*., 2012: 83.

Material examined: 1 ♂, 1 ♀; CHINA, '湖南张家界市武陵源区文丰村, 2016.IV.22N, 376 m, 29.3385°N, 110.5898°E, 采集人: 梁红斌 赵凯东, 灯诱 (China: Hunan, Zhangjiajie City, Wulingyuan District, Wenfeng Village, Hong-Bin Liang & Kai-Dong Zhao leg., light trap)' (IZCAS).

Comments: This species can be recognized and readily separated from its only congener, *Taiwanophodes magnus* Bekchiev, 2010 from northern Vietnam by the enlarged antennomere 10 with a ventral impression, and the markedly elongate ventral lobe on the left side of the aedeagal median lobe. In contrast, *T. magnus* has the antennomere 10 bearing a distinct projection at the apex, the antennomere 11 is strongly constricted at the base, and the median lobe of the aedeagus is in general gradually narrowing toward the apex (Bekchiev, 2010: figs 2-3, 7-8). The population from Hunan shows little morphological variation compared with those from Taiwan and Hainan.

Distribution: The species was originally described from Taiwan, subsequently recorded from Hainan, and is here newly recorded from Hunan (ca. 1100 km north of Hainan) (**New provincial record**).

ACKNOWLEDGMENTS

I thank Hong-Bin Liang for the collection and a loan of the material used in this paper. Giulio Cuccodoro and Alice Cibois (both Muséum d'histoire naturelle, Geneva) read the draft manuscript and supported helpful comments. The present study was provided by the National Natural Science Foundation of China (No. 31872965), the Shanghai 'Phosphor' Science Foundation, China (19QA1406600), and the National Special Fund on Basic Research of Science and Technology of China (No. 2014FY210200, 2014FY110100).

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